

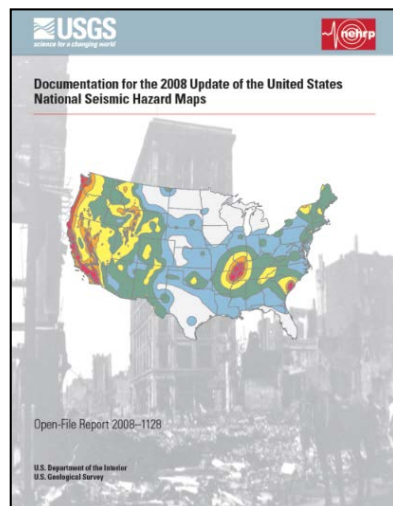
Motivation for Timing of 2018 NSHM Update

USGS 2018 NSHM Update Workshop

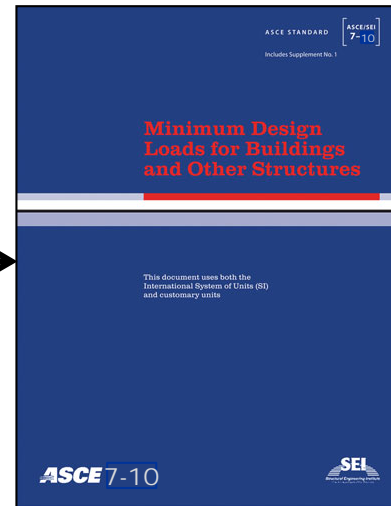
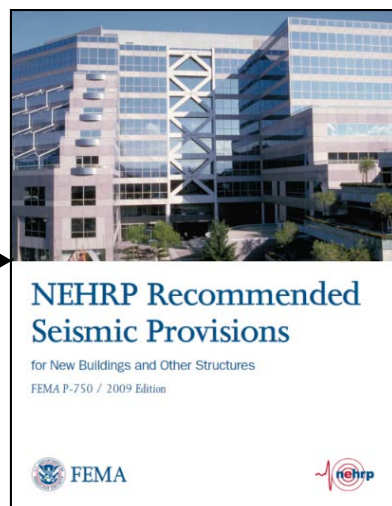
Nicolas Luco, PhD
Research Structural Engineer
U.S. Geological Survey, Golden, CO
Wednesday, March 7th, 2018

Building Code Documents

| USGS NSHM | NEHRP Provisions | ASCE 7 Standard | IBC |
|-----------|------------------|-----------------|-------------|
| 1996 | 1997, 2000 | 1998, 2002 | 2000, 20003 |
| 2002 | 2003 | 2005 | 2006, 2009 |
| 2008 | 2009 | 2010 | 2012, 2015 |
| 2014 | 2015 | 2016 | 2018 |
| 2018 | 2020 | 2022 | 2024 |



BSSC



U.S. Geological Survey (USGS) National Seismic Hazard Model (NSHM) 2018 Update Workshop

2018 NSHM Update Schedule

| USGS National Seismic Hazard Modeling Project (NSHMP) Activities | FY 2016 | | | FY 2017 | | | | | | | | | | | | FY 2018 | | | | | | | |
|---|---------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--|
| | Jul-16 | Aug-16 | Sep-16 | Oct-16 | Nov-16 | Dec-16 | Jan-17 | Feb-17 | Mar-17 | Apr-17 | May-17 | Jun-17 | Jul-17 | Aug-17 | Sep-17 | Oct-17 | Nov-17 | Dec-17 | Jan-18 | Feb-18 | Mar-18 | Apr-18 | |
| Requests for proposed modeling updates | | | | | | | | | | | | | | | | | | | | | | | |
| Deadline for publication of proposed modeling updates | | | | | | | | | | | | | | | | | | | | | | | |
| USGS review of proposed modeling updates & development of draft NSHM | | | | | | | | | | | | | | | | | | | | | | | |
| Workshops on modeling updates & draft NSHM | | | | | | | | | | | | | | | | | | | | | | | |
| Exploration of building-code impacts of draft NSHM | | | | | | | | | | | | | | | | | | | | | | | |
| Revision of draft NSHM | | | | | | | | | | | | | | | | | | | | | | | |
| Documentation of revised NSHM for a journal | | | | | | | | | | | | | | | | | | | | | | | |
| Journal review & revision of NSHM documentation | | | | | | | | | | | | | | | | | | | | | | | |
| Public comments on NSHM & documentation | | | | | | | | | | | | | | | | | | | | | | | |
| Publication of documentation & dissemination of NSHM | | | | | | | | | | | | | | | | | | | | | | | |
| NSHMP Steering Committee meetings: | | | | | | | | | | | | | | | | | | | | | | | |
| * At beginning of USGS review of proposed modeling updates & development of draft NSHM (e.g., Apr 2017) | | | | | | | | | | | | | | | | | | | | | | | |
| * Near (but not at) end of USGS review & development of draft NSHM (e.g., Oct 2017) | | | | | | | | | | | | | | | | | | | | | | | |
| * At end of documentation of revised NSHM (e.g., Jul 2018) | | | | | | | | | | | | | | | | | | | | | | | |

U.S. Geological Survey (USGS) National Seismic Hazard Model (NSHM) 2018 Update Workshop

2018 NSHM Update Schedule

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|---|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
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After 2018, next update will be in 2020

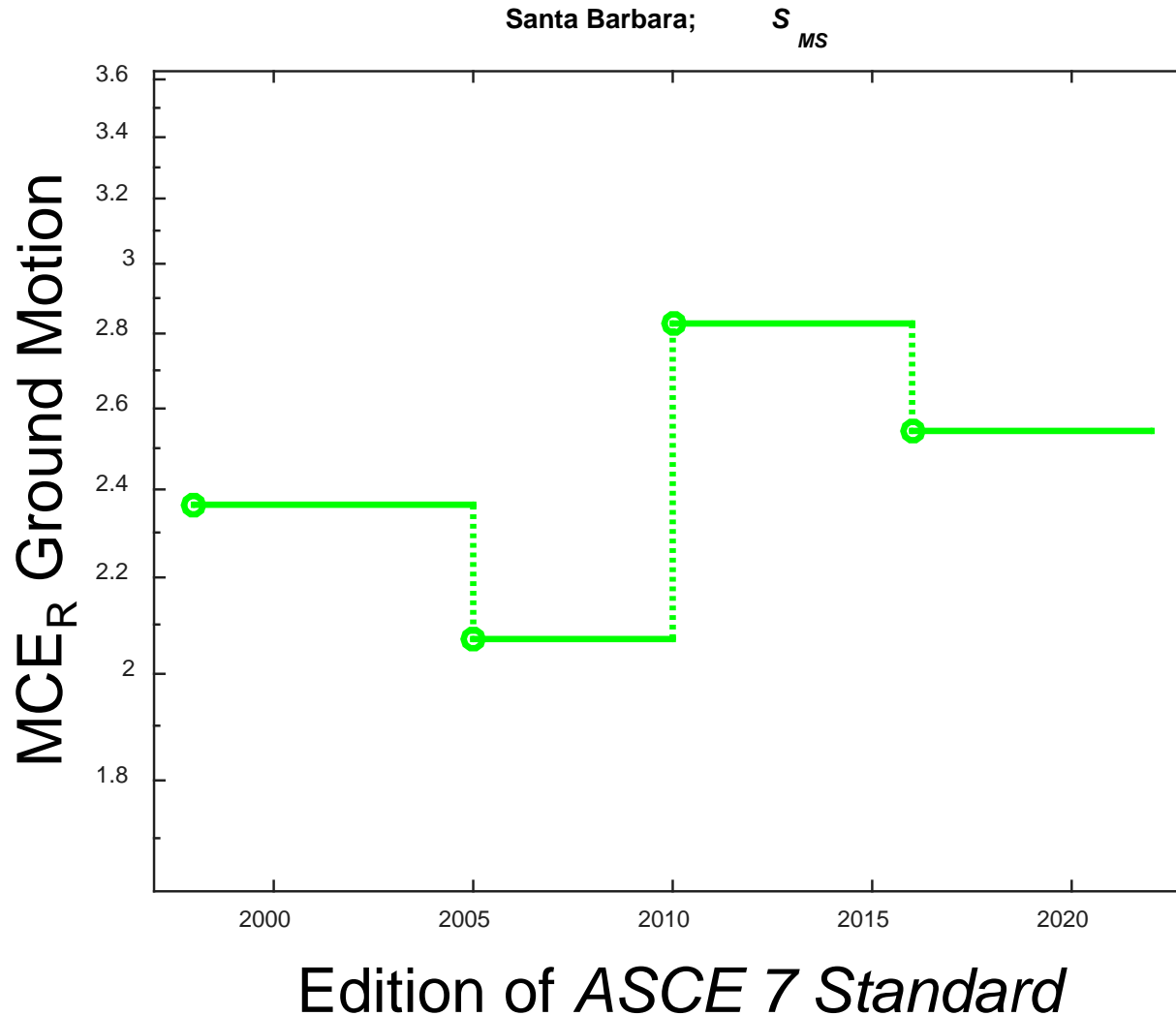
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U.S. Geological Survey (USGS) National Seismic Hazard Model (NSHM) 2018 Update Workshop

BSSC Project '17 for 2020 Provisions

- Motivated by negative votes during adoption of 2014 USGS NSHM for building codes, as well as Projects '97 & '07
- A collaboration of Building Seismic Safety Council (BSSC), with funding from FEMA, & USGS NSHM Project
- Identified 13+ issues with current building code ground motion maps; with available funding, focusing on four:
 - 1) *Balancing changes/instability across updates with uncertainty*
 - 2) *Targeted risk of collapse (currently 1% in 50 years)*
 - 3) *Deterministic ground motion caps*
 - 4) *Multi-period & multi- v_{S30} ground motions*

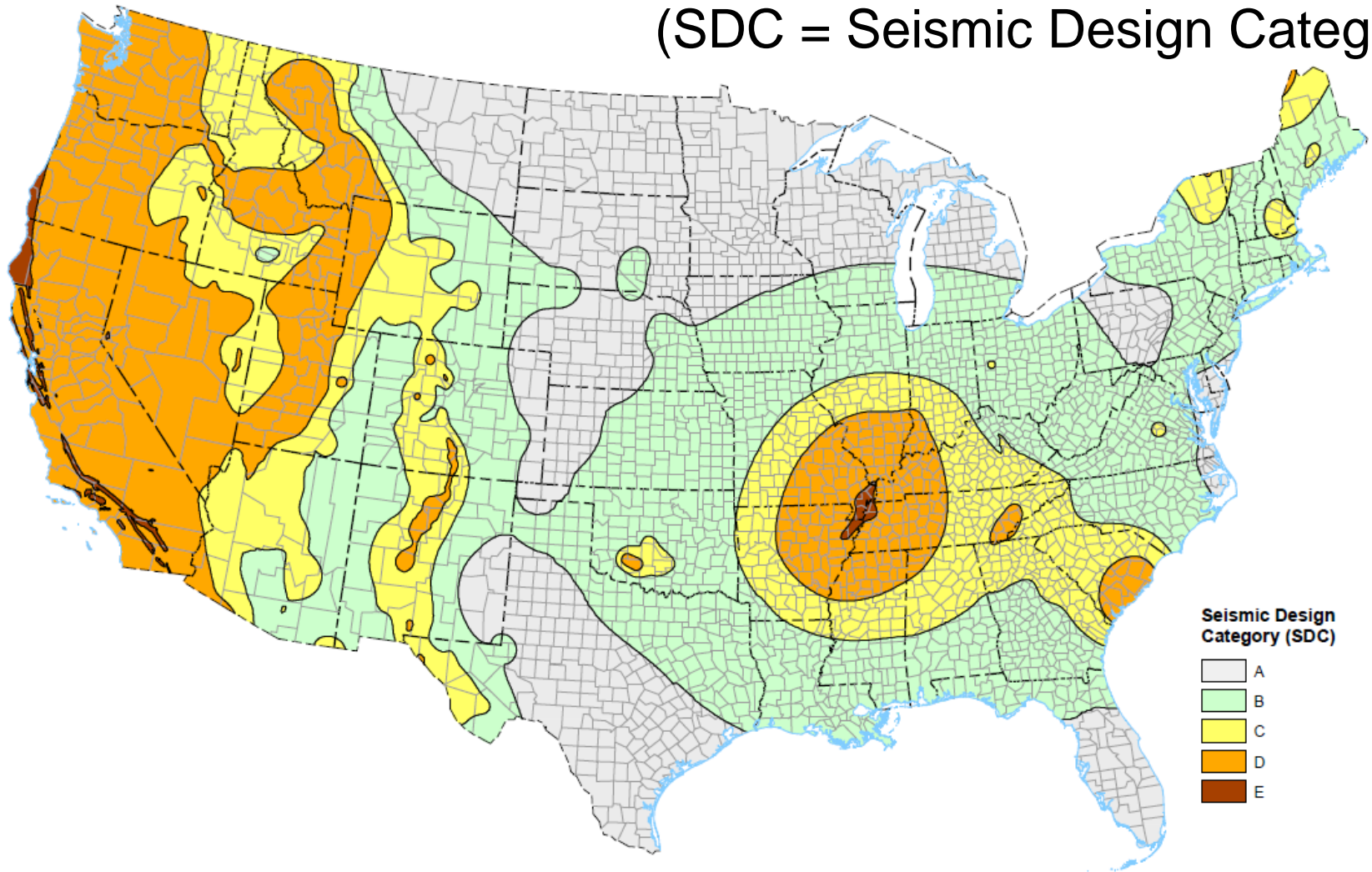
Issue: Instability across Updates



U.S. Geological Survey (USGS) National Seismic Hazard Model (NSHM) 2018 Update Workshop

Project '17 Solution: SDC Maps?

(SDC = Seismic Design Category)



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NSHM Users

